

Date: Tuesday, 19/08/2008 11:23:00 AM
 User: Julie Lecocq

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : OH-58 AFT X-TUBE ASSEMBLY
 Job Number : 41400
 Estimate Number : 10246
 P.O. Number :
 This Issue : 19/08/2008 S.O. No. :
 Prsht Rev. : NC Part Number : D058676201
 Drawing Number : D058-676-241 U/R *PH 06.03.20*
 Project Number : N/A
 Drawing Revision : A2 *B PH 01.00.22*
 Material :
 Due Date : 05/09/2008 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : *JUD 08.8.19*
 Comment : Est Rev:E 04.02.16 Reformat KJ/DS

Additional Product

PRELIMINARY ISSUE

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL

*JUD 08.11.17*

Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D058-676-201 *CHG02**Sosuliz*

2.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

3.0 D058676201TRN Crosstube Turning Detail



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

CROSSTUBE TURNING DETAIL

batch *637979**DP8-10-9*

4.0 BENDING BENDING MACHINE - SKIDTUBES



Comment: BENDING MACHINE

Bend tube as per Dwg D058-676-241 using CNC bender program OH58-af and Folio FT

DP8-10-9

5.0 QC6 DIMENSIONAL CHECK

QC15*208-10-09 ①**(P70)*

Comment: Inspect dimensions and work To Current Step

6.0 CROSSTUBES CROSSTUBES RESOURCE 1


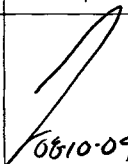


Comment: LANDING GEAR RESOURCE 1

1-Drill pilot holes in tube as per Dwg D058-676-241 using drill Jig DT8541 & DT8542

2-Ream hole to finish size in tube as per Dwg D058-676-241 using drill Jig DT8541 & DT8542. Check

27 08-10-09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
08-10-09	5.0	QC 15 required. Perm change				 08-10-09	 08-10-09	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 19/08/2008 11:23:00 AM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: OH-58 AFT X-TUBE ASSEMBLY

Job Number: 41400

Part Number: D058676201

Job Number:



Seq. #:

Machine Or Operation:

Description :

dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D058-676-241

8-10-14 AWM

4-Scribe part # and batch # using vibrating stylus as per Dwg D058-676-241

Inside of Cuff(Donot engrave on outside of tube)

RT 08-10-09

7.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



AWM 8-10-14



Comment: HAND FINISHING RESOURCE #1

1-Pressure wash as per QSI 005

2-Chemical Conversion Coat as per QSI 005 4.1 within 24 hours of bending and drilling

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

8 08/10/14 (P10)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

8 08/10/14 (P10)

10.0

OUTSIDE SERV.10

OUTSIDE SERVICES -skids



Comment: Sub-Contracting OUTSIDE SERVICES

Liquid Penetrant Inspection as per QSI 0380

Issue P/O: 7407

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

08/10/21 (P10)

11.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage Ensure copy of NDT results attached to work order.

8/10/20 (P10)

12.0

QC6

DIMENSIONAL CHECK



Comment: Inspect for damage & ensure results are as per Dwg D058-676-241

08-10-20 (P10)

13.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

RT 08-10-21

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
06-10-22	120	QCS required, Perm. Change.				06-10-22	06-10-22	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 19/08/2008 11:23:00 AM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: OH-58 AFT X-TUBE ASSEMBLY

Job Number: 41400

Part Number: D058676201

Job Number:



Seq. #:

Machine Or Operation:

Description :

2-Paint outside crosstube with White Imron as per QSI 005 4.2

RT 08-10-21

14.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches.

08-10-22

15.0

D2856400

Abrasion Strip



Comment: Qty.: 0.5800 f(s)/Unit Total : 0.5800 f(s)

Pick:

Qty Part number Description Batch
2 D2856-400-694 Abrasion Strip

PTO

16.0

D28911

2.25 Support



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch
2 D2891-1 Support 37655

RT 08-10-22

17.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch
4 MS21920-20 Clamp 107501

PTO

RT 08-10-22

18.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8579

2-Install supports and clamps as per Dwg D058-676-241. Torque clamps to 80-100 in lb.

08-10-22

RT 08-10-22

19.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

ENGINEERING
APPROVED

08/10/23

RT 08-10-23

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
03.10.22	15 17 19	SEE ATTACHED Rev B <u>REMOVE</u> D2856-400-094 (2) MS21920-20 (4)	ADD Magnabond 53925 108966 2T 081022 MS21920-20 (4) D3595-025-400 (4) B40220 2T 081022 Install supports with Rubber Cushion	PH	01.10.22	ALL	PH 01.10.22 S/L 10/23	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 19/08/2008 11:23:00 AM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: OH-58 AFT X-TUBE ASSEMBLY

Job Number: 41400

Part Number: D058676201

Job Number:



Seq. #:

Machine Or Operation:

Description :

20.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

21.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick: Packing Kit

Qty Part number

Description Batch

4 AN5-32A

Bolt

M109061

SS 08/10/23

22.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total: 8.0000 Each(s)

Pick: Packing Kit

Qty Part number

Description Batch

8 AN960JD516

Washer

M109059

SS 08/10/23

23.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick: Packing Kit

Qty Part number

Description Batch

4 MS21042L5

Nut (or -5)

M108827

SS 08/10/23

24.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

SS 08/11/17

25.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D058-676-201

Location:

Rev A

SS 08/11/17

POSITIVE RELEASE

EFFECTIVE

PH

AUTH 08.10.22

RELEASED

W

DATE 08.11.17

26.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/11/17

ACN 08/11/17

Job Completion



MF 08-11-17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

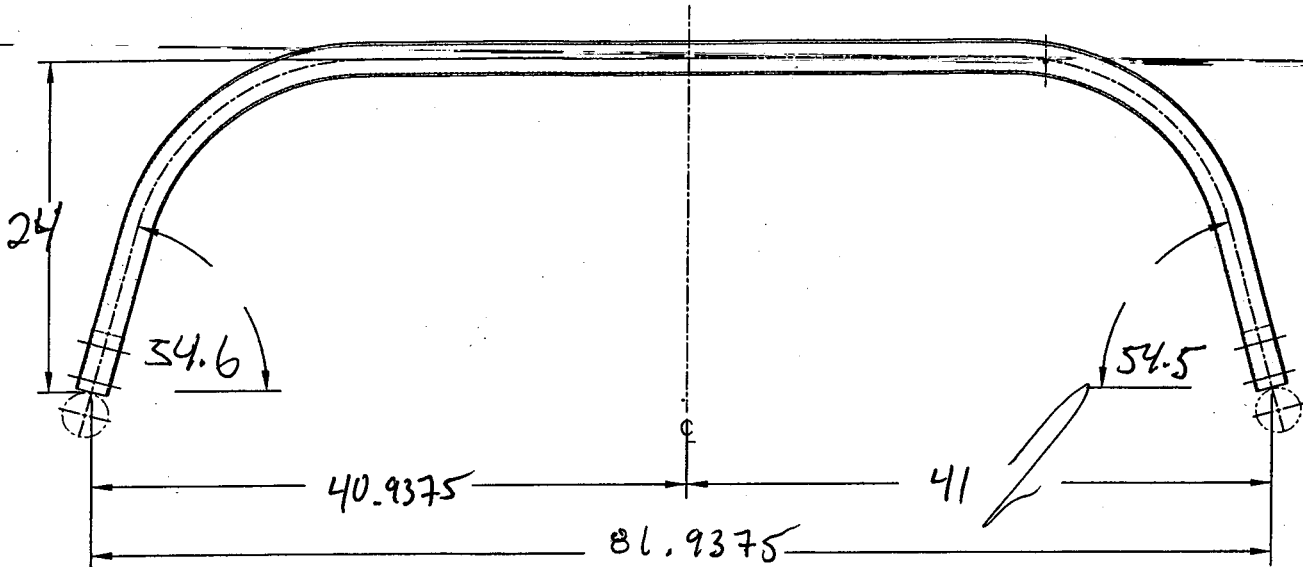
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	41400
Description: Crosstube High Aft (OH-58)		Part Number:	D058-676-201
Inspection Dwg: D058-676-241 Rev: A2		Page 1 of 1	

Required Dimension	Min	Max
Height	23.92	24.04
1/2 Span	40.86	40.98
Angle	54	56
Total Span	81.72	81.96



Comments

QC15 Inspection	
Date	08-10-09

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	



DESIGN CP	DRAWN BY CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D058-676-241	REV. A SHEET 1 OF 3
DATE 00.11.17		TITLE CROSSTUBE ASS'Y (OH-58 HIGH AFT) NTS	
A	00.11.17	NEW ISSUE	

Qty	Part Number	Description
X	D058-676-241	CROSSTUBE ASSEMBLY (OH-58 HIGH AFT)
1	D6007-106	CROSSTUBE
2	D2856-400-694	ABRASION STRIP
2	D2891-1	SUPPORT
4	MS21920-20	CLAMP

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6007-106
FINISHED LENGTH = 103.51±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

0108.20
UNDER REVIEW
06.10.18 DH
Update View 0-0

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NO. 41400

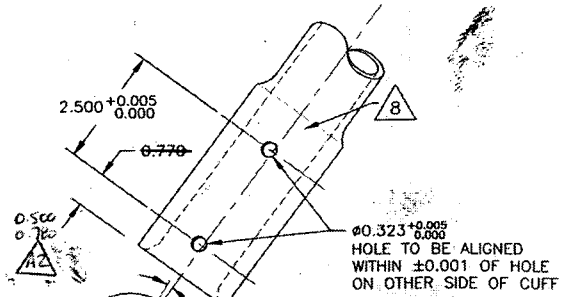
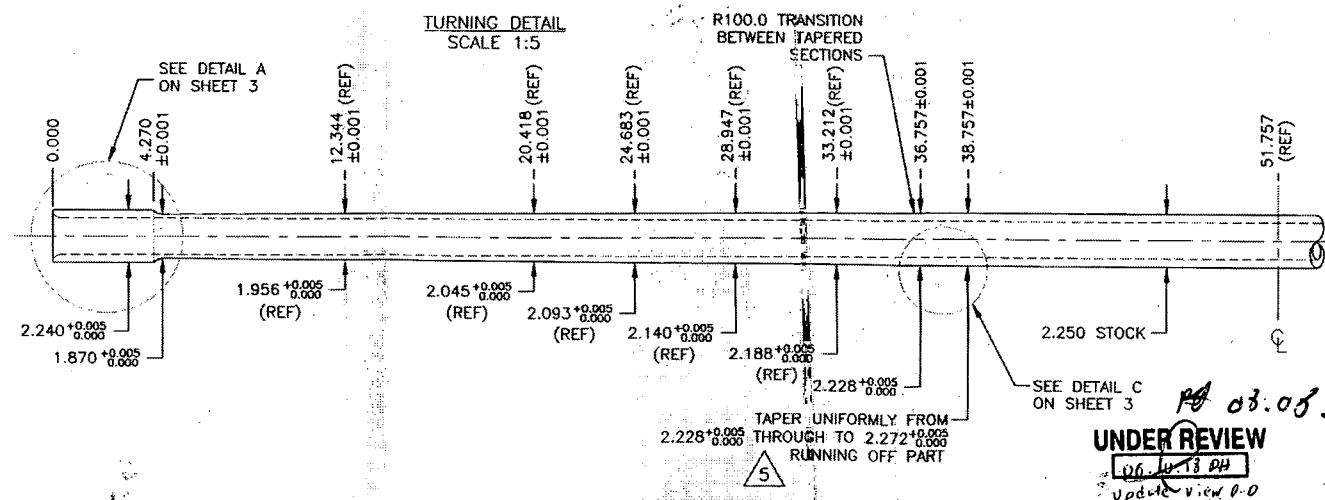
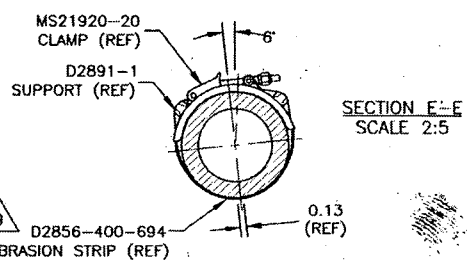
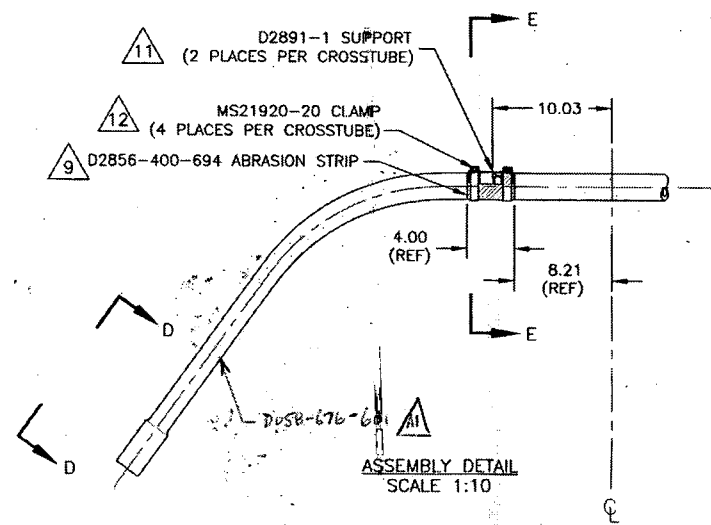
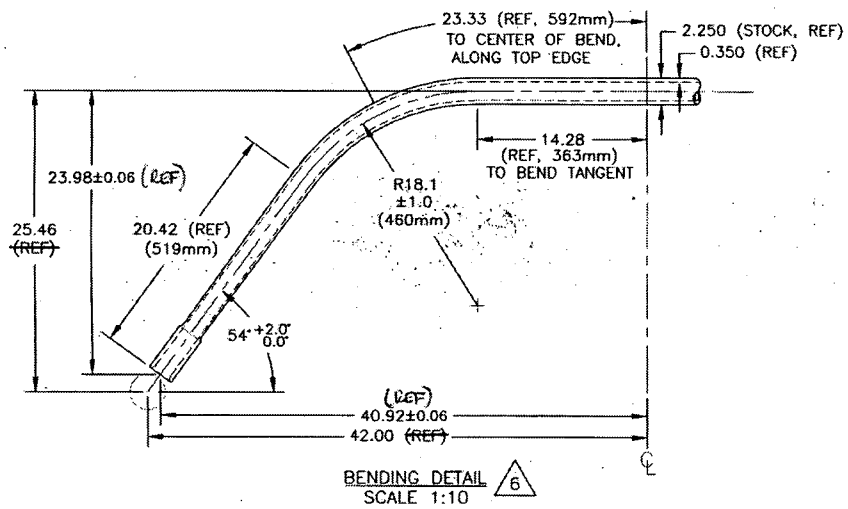
RELEASED
00.11.24 #

A2	01.07.16	UPDATE DIM TO FIRST HOLE	# CP
A1	01.03.07	ADD D058-676-601 P/N	# CP

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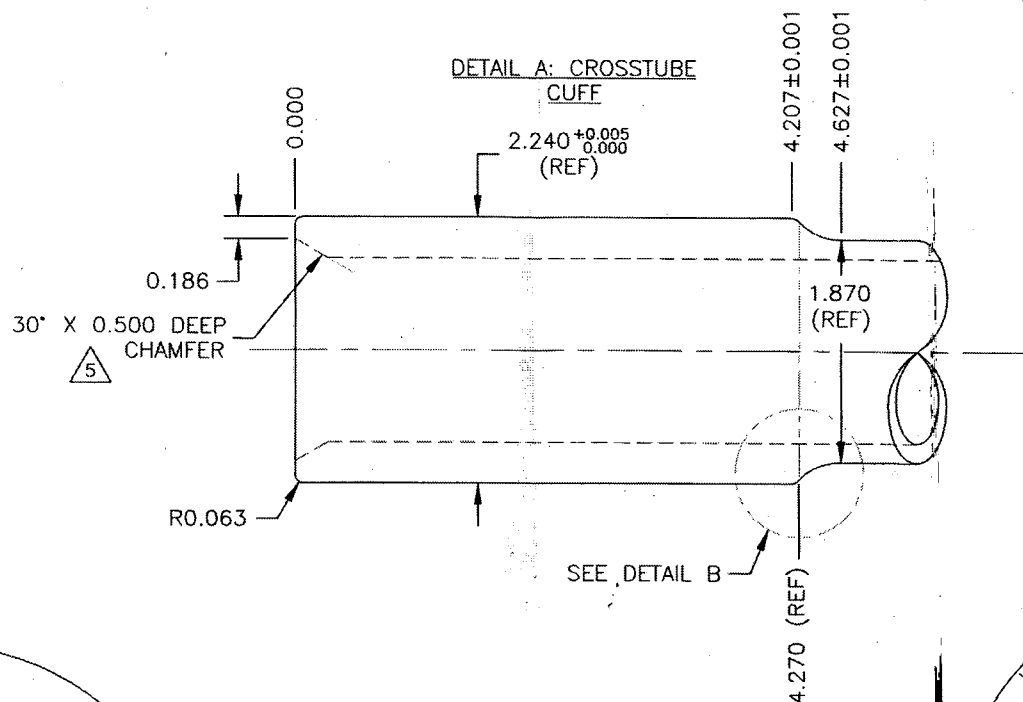


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DATE		00.11.17		DRAWING NO. D058-676-241
TITLE		CROSSTUBE ASS'Y (OH-58 HIGH AFT)		REV. A SHEET 2 OF 3 SCALE 1:10

UNDER REVIEW
06.10.18 DH
Update view 0-0

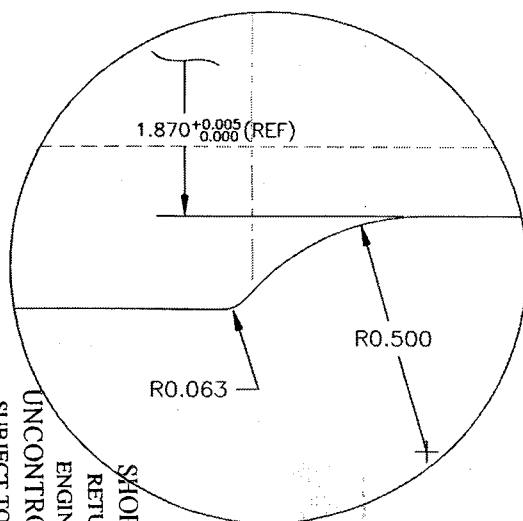
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WORK ORDER
41400

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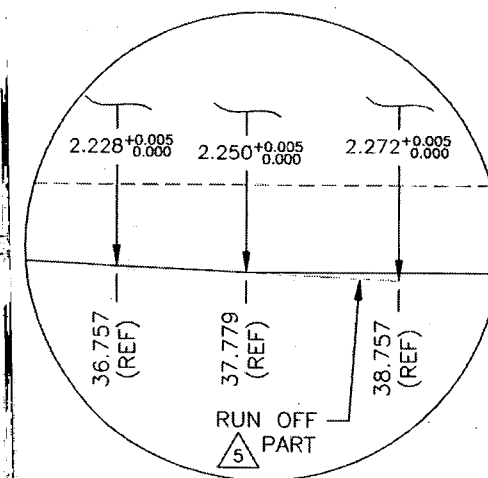


UNDER REVIEW

06.10.13 DH
Update view 0-0
R4
03.08.20



DETAIL C:
TAPER RUN-OFF
NOT TO SCALE



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DESIGN
CHECKED
DATE
00.11.17

DRAWN BY
APPROVED

DART
DRAWING NO.
D058-676-241

DART AEROSPACE LTD.
MARKHAM, ONTARIO, CANADA
REV. A
SHEET 3 OF 3
TITLE
CROSSTUBE ASS'Y (OH-58 HIGH AFT) 1:1



LIQUID PENETRANT TEST REPORT

P- 09128

PAGE 1 OF 1

CLIENT Dart Aerospace DATE 2008-10-20 TIME AM ☐ PM ☐
ATTENTION Linda Lacelle ACUREN JOB NO. 188-08-7549
ADDRESS 1270 Aberdeen st. POWO NO. 7407
Hawkesbury, ont. WORK LOCATION Hawkesbury
ACCEPTANCE STD. ASTM 1417/1031-038 REV./DATE 2005
PROJECT 212/205 HIGH FEO X-TUBE ASSEMBLY, 2066 AFT X-TUBE, 04-58 FWD X-TUBE ASSEMBLY,
ITEM(S) EXAMINED Sub's 42307, 42308, 41990, 41989, 41398, 41399, 41400

JOB DESCRIPTION PROCEDURE NO. LT-0002 REV./DATE TECHNIQUE NO. LT-0002 REV./DATE
PART NO. D212664101, D206667203, D058676101, D058676201 MATERIAL ALOPINE ALUM. THICKNESS
SCOPE WET FLOURESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON 100%
EXTERNAL SURFACE

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 8171 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT MINIMUM DWELL TIME 30 MIN. LIGHTING EQUIP. ☒ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H₂O MINIMUM DRY TIME >10 MIN. OTHER CAL FEB 12 09
DEVELOPER SKDS 2 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

ITEM #	COMMENTS	ACCEPT	REJECT
<u>42307</u>	<u>ACCEPTABLE</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>42308</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>41990</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>41989</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>41398</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>41399</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>41400</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.
Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE [Signature] SIGNATURE DTR #
TECHNICIAN (SIGNATURE): [Signature] SIGNATURE REPORT REVIEWED BY:
NAME (PRINT): FREDERICK CHAGNON NAME INITIALS
CGSB LEVEL IV 1ST TECHNICIAN CGSB LEVEL II 2ND TECHNICIAN
CGSB REG. NO. 10560 CGSB REG. NO.

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

PT Sept 2005

Qty -241	Part Number	Description
X	D058-676-241	CROSSTUBE ASSEMBLY (OH-58 HIGH AFT)
1	D6007-106	CROSSTUBE
2	D2891-1	SUPPORT
4	D3595-075-400	RUBBER CUSHION
4	MS21920-22	CLAMP (OR MS21920-21)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

MS21920-20 RF 08.10.22

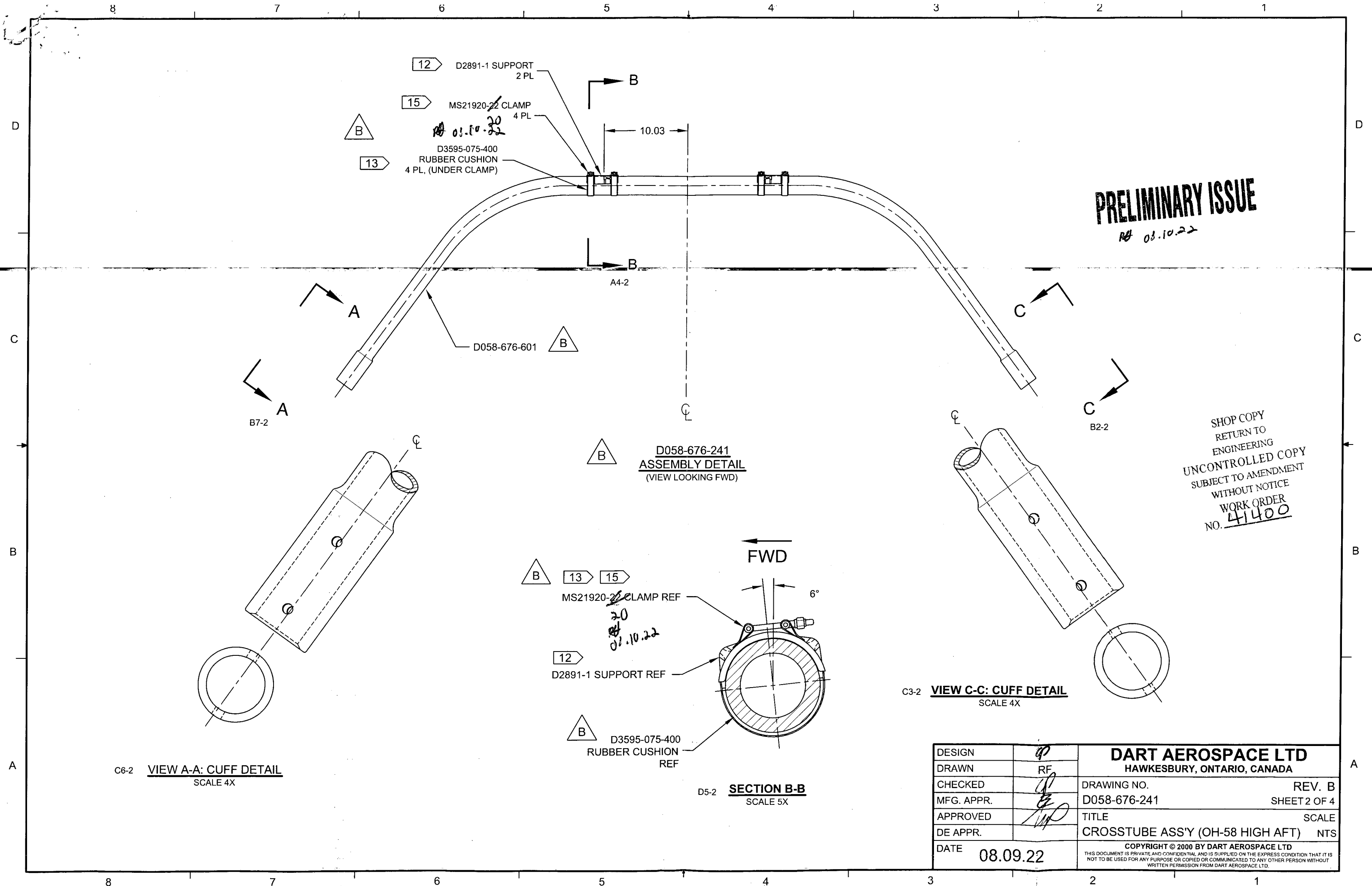
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6007-106
FINISHED LENGTH = 103.51±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D058-676-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 19.0 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTERING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS (OR -21) WITH D3595-075-400 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

PRELIMINARY ISSUE
08.10.22

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B	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-075-400 WAS D2856-400-694 (ZN D6-2 & A5-2); MS21920-22 WAS MS21920-20 (ZN D6-2 & B5-2); 0.780/500 WAS 0.700 (ZN B7-3); ADD/REMOVED REF. & ADD TOLERANCES (ZN D7-3, C4-3, C5-3 & D3-3); RELOCATED FLAG #6 (ZN A7-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.09.22
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	1 RF		
DRAWN	RF		
CHECKED	RF		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	08.09.22		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. B SHEET 1 OF 4 SCALE NTS	
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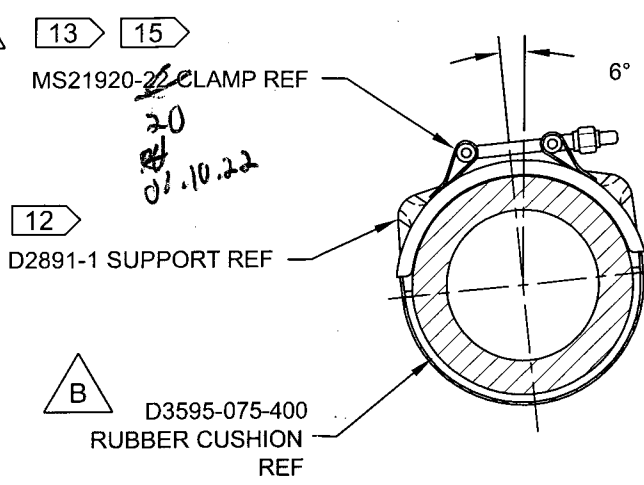


PRELIMINARY ISSUE

08.10.22

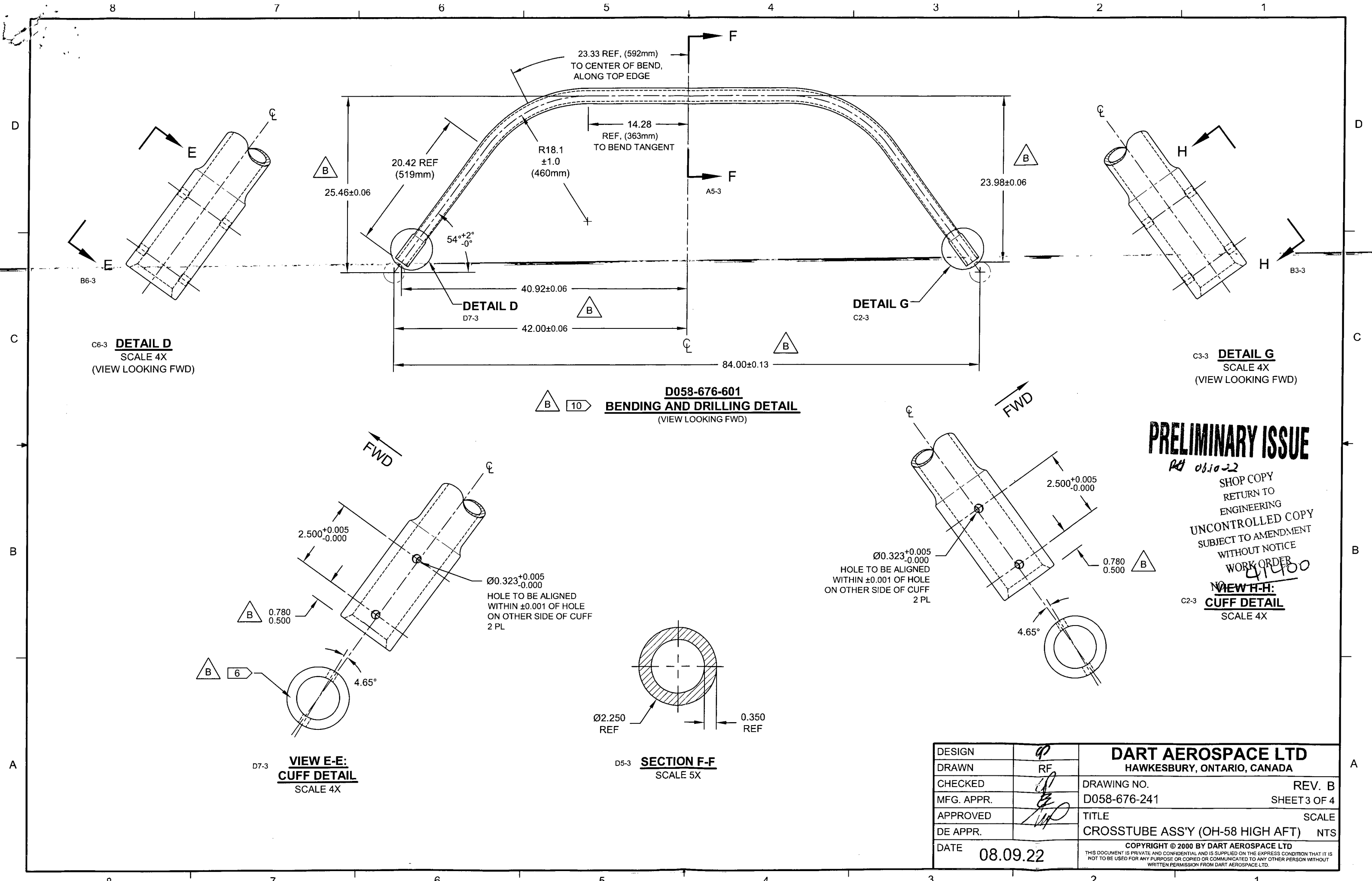
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C6-2 **VIEW A-A: CUFF DETAIL**
SCALE 4X



C3-2 **VIEW C-C: CUFF DETAIL**
SCALE 4X

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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D058-676-241	SHEET 2 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (OH-58 HIGH AFT)	NTS
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C6-3 **DETAIL D**
SCALE 4X
(VIEW LOOKING FWD)

C3-3 **DETAIL G**
SCALE 4X
(VIEW LOOKING FWD)

D058-676-601
BENDING AND DRILLING DETAIL
(VIEW LOOKING FWD)





D7-3 **VIEW E-E:**
CUFF DETAIL
SCALE 4X

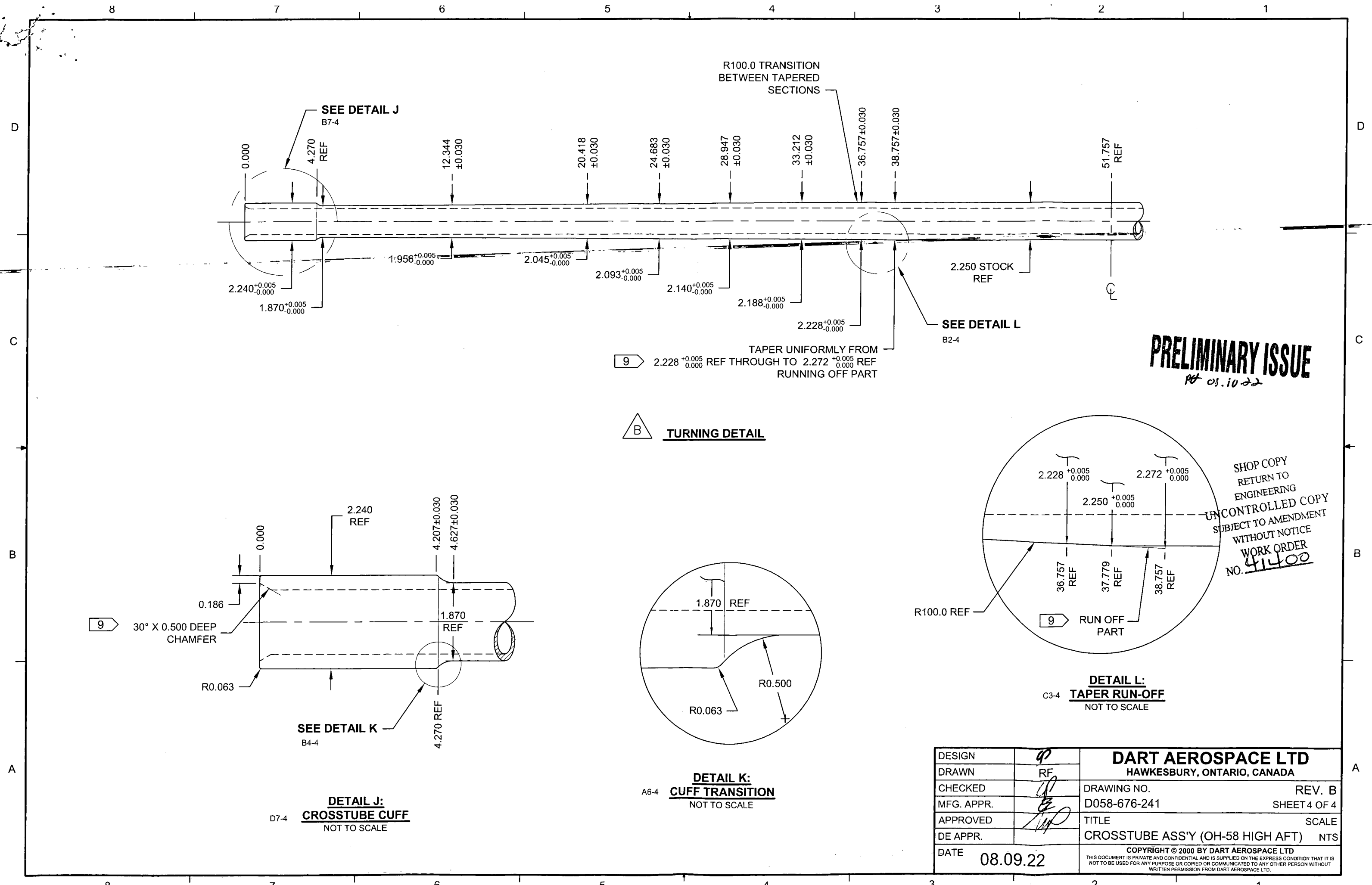
D5-3 **SECTION F-F**
SCALE 5X





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C2-3 **VIEW H-H:**
CUFF DETAIL
SCALE 4X

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MFG. APPR.		D058-676-241	SHEET 3 OF 4
APPROVED		TITLE	SCALE
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ENGINEERING CHANGE NOTICE

DART AEROSPACE LTD

Date: 08.11.11	Job No.:	ADR Yes/No: Y	ADR Date: 08.11.11	ECN #: 08- 563
Product No.: D058-676		Created By: <i>JP</i>	Approved By: <i>IAN</i>	
Product Name: Crosstubes		Checked By: <i>JP</i>	General Manager Approval:	

Distribution	Reqd	Resp	Initial / Date
Production Manager	Y	LL	
Production Engineering Coord	Y	DD/EC	
Production Document Control	Y	JLD	
Customer Technical Support	Y	DSTOW	

Distribution	Reqd	Resp	Initial / Date
DQA / QA Coord	N		
QC Coordinator	Y	JM	
Marketing	<i>W</i>	<i>SW</i>	
Customer Order Processing	N		

Reason for Change:
Use Magnobond 6398 on crosstube supports. DSI 9425 indicates the change to the customer.

Documents Affected:
Release: D058-676-141/-241 Rev B, DSI 9425 Rev A

PARTS MUST COMPLY ☒ PREVIOUS PARTS SATISFACTORY ☐

#	Quality Assurance Actions	Reqd	Resp	Notes	Complete
1	Notify Previous Customers	N			
2	Notify Eurocopter France	N			
3					

#	Engineering Actions	Reqd	Resp	Notes	Complete
4	Required Documents/Drawings Under Review	Y	PH		
5	Update Product Compatability Matrix	N			
6	Create Eurocopter Form (FEE)	N			
7	Notify TC / FAA of Change	N			

#	Document Control Actions	Reqd	Resp	Notes	Complete
8	Move Electronic Files	Y	KJ		08.11.13 <i>KA</i>
9	Update Blue/Pink/DSI Folder and Electronic Files	Y	KJ	Add DSI 9425 Rev A to blue file	08.11.13 <i>KA</i>
10	Update Controlled PDF Files	Y	KJ		08.11.13 <i>KA</i>
11	Update Master Document List (MDL)	Y	PH/RF		
12	Update Document Record (DR)	Y	KJ	676 Rev. C	08.11.13 <i>KA</i>
13	Update Product Development Summary	N			
14	Update QSI 021 and/or STC Approval List	N			
15	Update Parts / STC Database	<i>Y</i>	<i>KJ</i>	DSI 9425-0117	
16	Update / Verify ARC Database	<i>Y</i>	<i>KJ</i>		
17	Create / Update Change Record Form	Y	KJ	D058-676-101/-201 now at CHG 002, DSI at CHG 001	08.11.13 <i>KA</i>
18	Create / Update PPP's	Y	KJ	See above	08.11.13 <i>KA</i>
19	Update Document Control Database / Laminated Dwgs	Y	KJ	AS REQUIRED	N/A <i>KA</i>
20	Update Grey Project Binder	Y	KJ	ADR - SENT TO RF/DS FOR SIGNING	
21	Update D-Part/M-Drawing/DSI/DEO Master Binders	Y	KJ		08.11.13 <i>KA</i>
22					
23					

Description / Action:

- Parts have been added/removed see drawings

D058-676-101 (2 IN STOCK, 1 IN PROD, B 41398)
D058-676-201 (2 IN STOCK, 2 IN PROD, B 41399, 41400)

REFERENCE ONLY

ECN Verified & Complete: _____ Date: _____

L Lacelle

From: Peter Hum [phum@dartaero.com]
Sent: October 28, 2008 7:56 AM
To: Mike Petsche
Cc: 'L Lacelle'
Subject: FW: OH58 crosstubes
Importance: High

Mike,

~~Last week I e-mailed you that we probably need a DSI for this....we will discuss at the engineering meeting.~~

Linda,

If you really need the rack,

You can

- 1) Package it with a RED TAG. Waiting for DSI if we decide to go that way
- 2) The Red Decal on the actual x-tube will need to have the CHG # updated

Peter

From: L Lacelle [mailto:llacelle@dartaero.com]
Sent: Tuesday, October 28, 2008 7:35 AM
To: 'Peter Hum'
Subject: OH58 crosstubes
Importance: High

When can we package the 2 OH58 crosstubes, I need the rack!!!

Thank You,
Linda Lacelle
Production Manager
Dart Aerospace Ltd

B 41400
B 41399

28/10/2008

Item	Qty -241	Part Number	Description
1	X	D058-676-241	CROSSTUBE ASSEMBLY (OH-58 HIGH AFT)
2	1	D6007-106	CROSSTUBE
3	2	D2891-1	SUPPORT
4	4	D3595-063-395	RUBBER CUSHION
5	4	MS21920-20	CLAMP (OR MS21920-21)
6	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6007-106
FINISHED LENGTH = 103.51±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D058-676-241" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 19.0 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
05/11/17

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A	NEW ISSUE	CP	00.11.17
REV.	U	DESCRIPTION	BY DATE
DESIGN	U	DART AEROSPACE LTD HAWKESSBURY, ONTARIO, CANADA	
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8 7 6 5 4 3 2 1

D

C

B

A

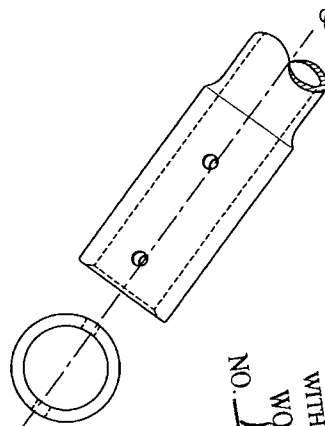
D

C

B

A

C6-2 VIEW A-A: CUFF DETAIL
SCALE 4X



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NO. 417400

- 12 D2891-1 SUPPORT
2 PL
- 15 MS21920-20 CLAMP
4 PL
- 13 D3595-063-395
RUBBER CUSHION
4 PL, (UNDER CLAMP)

10.03

A4-2

D058-676-601

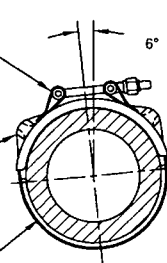
D058-676-241
ASSEMBLY DETAIL
(VIEW LOOKING FWD)

- 13 15 MS21920-20 CLAMP REF
- 12 D2891-1 SUPPORT REF
- 13 D3595-063-395
RUBBER CUSHION
REF

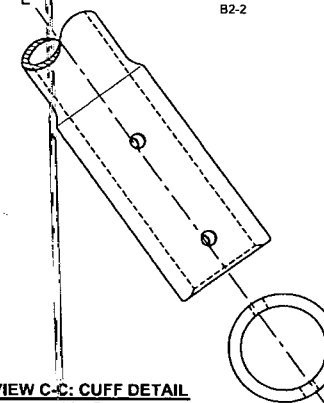
FWD

6°

D5-2 SECTION B-B
SCALE 5X



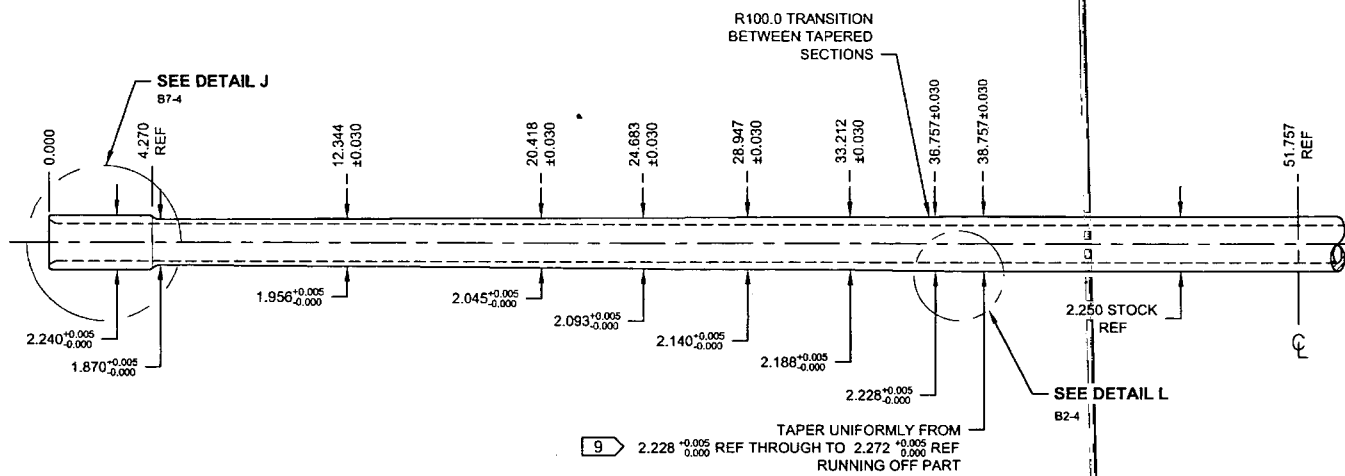
C3-2 VIEW C-C: CUFF DETAIL
SCALE 4X



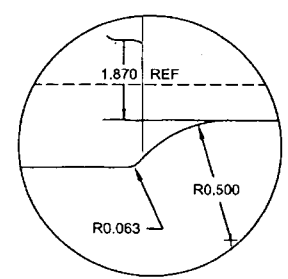
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DE APPR.	1	RF	DATE 08.11.06	

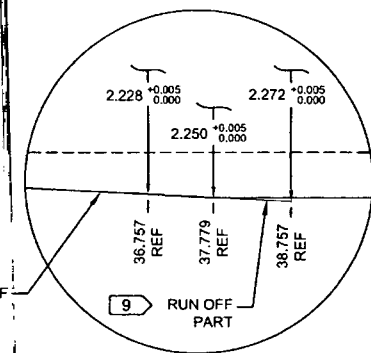
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B TURNING DETAIL

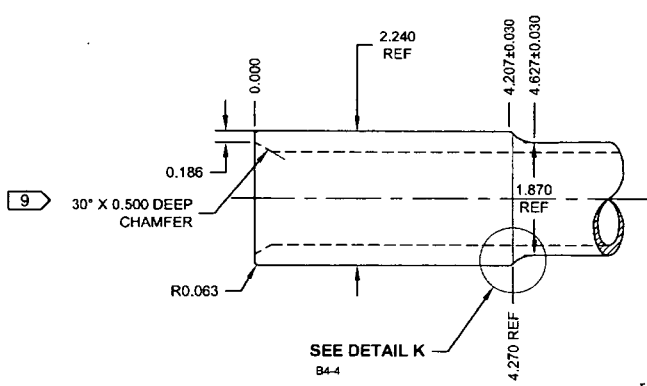


DETAIL K: CUFF TRANSITION
NOT TO SCALE



DETAIL L: TAPER RUN-OFF
NOT TO SCALE

RELEASED



DETAIL J: CROSSTUBE CUFF
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